



Chesterfield County, Virginia Department of Building Inspection

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Selected changes affecting residential energy conservation from the 2006 Virginia Residential Code. These changes are effective for permits issued under the 2006 Virginia Uniform Statewide Building Code.

2006 IRC Energy Efficiency Requirements by Inspection Type

I. Building Inspections

A. Floor slab (conditioned)

- Any slab-on-grade for conditioned space less than 12" below grade, must have perimeter insulation
- Insulation must extend downward on the inside or outside of the foundation wall, or
- The insulation can be located under the slab, or
- A combination of insulation along the inside of the foundation wall and under the slab
- R-10 extending 2'

B. Veneer

1. Sheathing

- A layer of 15 lb. felt or other approved house wrap must be installed over studs and sheathing of exterior walls. The felt or house wrap must be installed to seal all seams joints and penetrations.
- House wraps must be installed per the manufacturer instructions

2. Windows

- U-factor of 0.40 or lower

3. Doors

- U-factor of 0.60 or lower

4. Air Infiltration

- Must be <.3 on windows, skylights and sliding doors and <.5 on swinging doors

C. Framing

- Dropped ceiling or chase adjacent to the thermal envelope, knee wall, behind tubs and shower on exterior walls, must be sealed with an air barrier material suitable film or solid material.
- Seal all utility penetration in sheathing, bands, and top and bottom plates.
- Exterior fan and exhausts termination must have automatic or gravity dampers that close when the ventilation system is not operating. (Bathroom exhaust fan can have a damper built into the unit.)
- Seal around all HVAC supplies and returns penetrating the thermal envelope.

D. Insulation

- Opening between window and door assemblies and their jambs and framing must be sealed
- Ceiling insulation must be R-38
 - Exception:
 1. R-30 insulation is deemed to satisfy the requirement for R-38 insulation whenever the full height of uncompressed R-30 insulation extends over the wall top plate at the eaves
 2. R-30 insulation can be used in a roof ceiling assembly that does not allow sufficient space for R-38.
 - Note: Maximum area allowed is 500ft²
- Basements (conditioned)

- Exterior walls must be insulated from the top of the wall to a minimum 10' below grade or to the basement floor whichever comes first
- *R*-10 with continuous insulation
- *R*-13 with framing cavity

E. Final Building

- Attic insulation: Blown or sprayed must have a marker every 300ft² showing the depth in inches of the attic insulation
- The insulation installer must provide a certification listing the type, manufacturer and R-value of the insulation in each building.
- A permanent certificate shall be posted on or in the electrical distribution panel listing all insulation R-values, fenestration U-values, R-value of insulation for ducts located outside the thermal envelope, and the type and efficiency of heating, cooling and service water heating equipment.
- All attic and knee wall access doors must be insulated and weather stripped.
- Exterior fan and exhausts termination must have automatic or gravity dampers that close when the ventilation system is not operating. (Bathroom exhaust fan can have a damper built into the unit.)
- Crawl spaces (conditioned)
 - Crawl space walls must be insulated from the bottom of floor to the finished grade and then vertically and /or horizontally 24"
 - *R*-10 with continuous insulation
 - *R*-13 with framing cavity
 - Exposed earth is covered with a continuous vapor retarder.
 - All joints of the vapor retarder shall overlap by 6" and be sealed or taped.
 - The edges of the vapor retarder shall extend at least 6" up the foundation wall and shall be attached to the foundation wall.
 - 1 CFM of flow per 50 sq. ft. conditioned air supplied to crawl space
 - Air flows back to house thru ducts or transfer grille
- Seal all utility penetration,
- Seal around all plumbing pipe and traps to the outside of the thermal envelop.
- Seal around all mechanical stack and ducts to the outside of the thermal envelop.
- Seal around all boxes to the outside of the thermal envelop.

II. Electrical Inspection

Recessed lighting

- IC rated enclosures must be sealed or gasketed to prevent air leakage, or
- IC rated enclosures must meet ASTM E 283 ≤ 2.0 CFM leakage, or
- Located inside an airtight box with clearances of at least 0.5 inch from combustible material and 3 inches from insulation

III. Mechanical Inspection

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- Supply and return ducts shall be insulated to a minimum of *R*-8.
- Ducts, air handlers, filter boxes and building cavities used as ducts shall be sealed. Joints of duct systems shall be made substantially airtight by means of tapes, mastics, gasketing or other approved closure systems.
- Building framing cavities shall not be used as supply ducts.
- Mechanical system piping capable of carrying fluids above 105° F or below 55° F shall be insulated to a minimum of *R*-2.
- All circulating service hot water piping shall be insulated to at least *R*-2. Circulating hot water systems shall include an automatic or readily accessible manual switch that can turn off the hot water circulating pump when the system is not in use.
- Outdoor air intakes and exhausts shall have automatic or gravity dampers that close when the ventilation system is not operating.
- Heating and cooling equipment shall be sized based on building loads calculated in accordance with ACCA Manual J or other approved heating and cooling calculation methodologies
- Note: HVAC contractors will need to maintain these calculations.